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PRODUCTION ENGINEERING MEASURES FOR TEMPERATURE COMPENSATED MIC--ETC(U)
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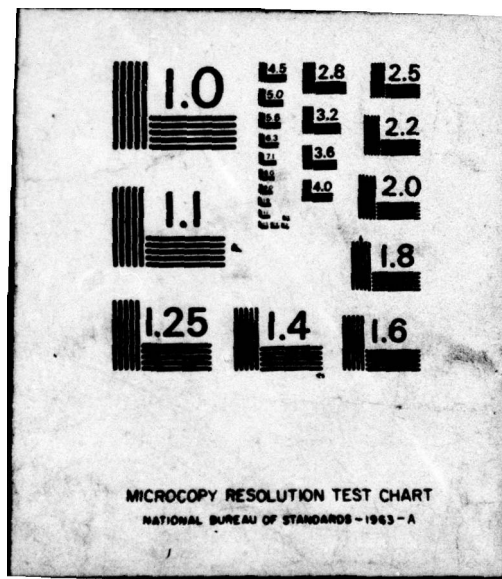
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PRODUCTION ENGINEERING MEASURES REPORT

DAAB05 - 72 - C - 5839

TEMPERATURE COMPENSATED MICROCIRCUIT
CRYSTAL OSCILLATOR

EIGHTH QUARTERLY PROGRESS REPORT

BY

Donald L. Thomann

1 DECEMBER 1973 TO 28 FEBRUARY 1974

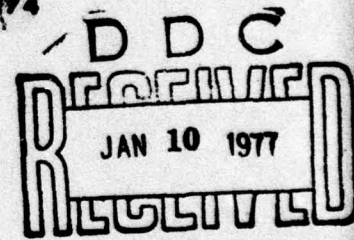
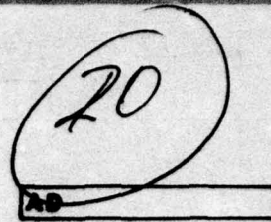
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PRODUCTION ENGINEERING MEASURES
FOR
TEMPERATURE COMPENSATED MICROCIRCUIT
CRYSTAL OSCILLATOR

EIGHTH QUARTERLY REPORT
1 DECEMBER 1973 TO 28 FEBRUARY 1974

Contract No. DAAB05-72-C-5839

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Prepared By

Donald L. Thomann

CTS KNIGHTS, INC.
SANDWICH, ILLINOIS

For

US Army Electronics Command
Ft. Monmouth, New Jersey

see 14B

ABSTRACT

A search was made for an alternate source for the SOS C-MOS integrated circuit. One potential vendor may be in a position to build this part near the end of 1974. However, we cannot count on having custom parts available for a period of 6 to 12 months.

As an alternative, the feasibility of using suitable off-the-shelf parts which may have been developed in the last several months was investigated.

One such part was found and was utilized in constructing two sample MCTCXO's.

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PURPOSE

The purpose of the work performed during this reporting period was to find a new supplier for the custom SOS C-MOS integrated circuit, and to evaluate any suitable off-the-shelf devices which may have become available in the last several months.

DISCUSSION

The vendor of the custom integrated silicon-on-sapphire C-MOS informed us that he no longer will supply this part except under conditions which are not acceptable to CTS Knights.

An effort was made to find alternate suppliers of SOS C-MOS devices. No responsible vendor is in a position to custom integrate a silicon-on-sapphire device at this time. One supplier, RCA Somerville, thought he might be interested during the last quarter of 1974. The time required of the custom SOS C-MOS chip is estimated to be 6 to 12 months.

A search was also made for any suitable off-the-shelf parts that may have become available in the last two years.

Samples constructed with the Harris "Dielectrically Isolated" process were obtained and evaluated in a bread-board circuit. The devices functioned properly in the circuit but power consumption was found to be about 50% greater than allowed by the specification.

With this limited success, two MCTCXO prototypes were constructed using the Harris chips for delivery to a commercial customer. These units met all specifications except power consumption, as expected.

One unit, at 3.84 MHz, was 35% over the power limit. The other, at 5.12 MHz was 36% over the power limit for this frequency.

CONCLUSIONS

A reliable SOS C-MOS manufacturer was found who may be in a position to help us near the end of 1974. To wait that long to begin development of the part could cause the contract to be delayed a year.

The off-the-shelf Harris part was found to function properly in the MCTCXO, but power consumption is appreciably higher.

We recommend that the power specification be relieved to permit the use of the Harris part so that work on the contract work can proceed without further delay.

MANPOWER UTILIZATION REPORT

1 December 1973 to 28 February 1974

Contract No. DAAB05-72-C-5839

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Temperature Compensated Crystal Oscillator

C-MOS